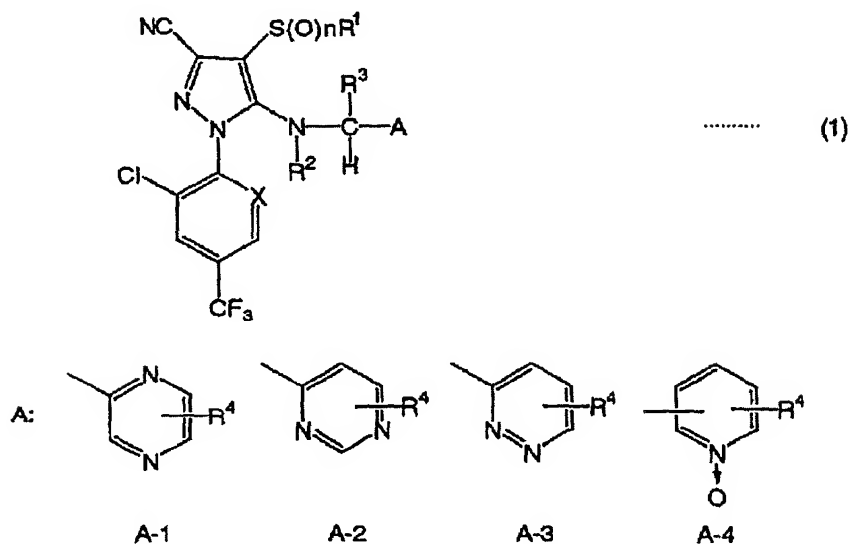


Claims

1. A 1-aryl-3-cyano-5-heteroarylalkylaminopyrazole derivative represented by the following general formula (1):



(wherein X represents N or C-halogen, R¹ represents an alkyl group, an alkenyl group, an alkynyl group, or a haloalkyl group, R² represents hydrogen atom, an alkyl group, or an acyl group, R³ represents hydrogen atom or an alkyl group, A represents any one of the groups represented by above A-1 to A-4, R⁴ represents hydrogen atom, an alkyl group, or a halogen atom, and n represents 0, 1, or 2, provided that R¹ is a haloalkyl group except a perhaloalkyl

group when A is A-1 and n is 0, and that n is not 0 when A is A-4).

2. The 1-aryl-3-cyano-5-heteroarylalkylaminopyrazole derivative according to claim 1, wherein A is A-1 and R⁴ represents hydrogen atom or an alkyl group.

3. The 1-aryl-3-cyano-5-heteroarylalkylaminopyrazole derivative according to claim 1 or 2, wherein R¹ is an alkyl group having 1 to 4 carbon atoms or a haloalkyl group having 1 to 4 carbon atoms.

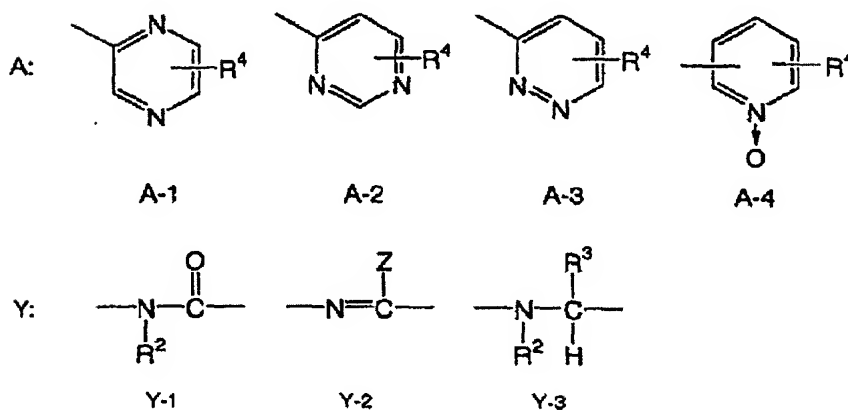
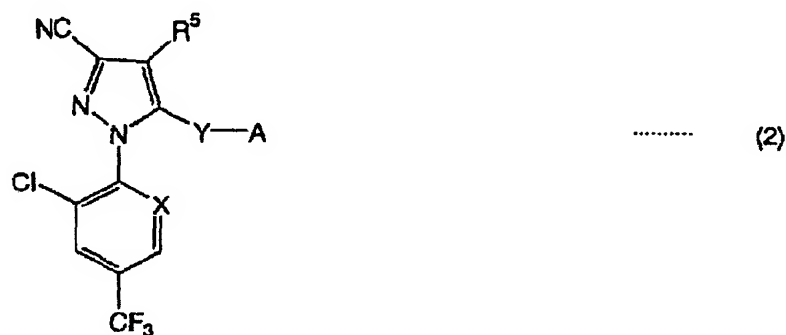
4. The 1-aryl-3-cyano-5-heteroarylalkylaminopyrazole derivative according to any one of claims 1 to 3, wherein R¹ is an haloalkyl group having 1 to 2 carbon atoms.

5. 1-(2,6-Dichloro-4-trifluoromethylphenyl)-4-fluoromethylthio-5-(pyrazin-2-ylmethylamino)pyrazole-3-carbonitrile and 1-(2,6-dichloro-4-trifluoromethylphenyl)-4-trifluoromethylsulfinyl-5-(pyrazin-2-ylmethylamino)pyrazole-3-carbonitrile.

6. A pest control agent containing the 1-aryl-3-cyano-5-heteroarylalkylaminopyrazole derivative according to any one of claims 1 to 5 as an active ingredient.

7. An insecticide containing the 1-aryl-3-cyano-5-heteroarylalkylaminopyrazole derivative according to any one of claims 1 to 5 as an active ingredient.

8. A pyrazole derivative represented by the following general formula (2):



(wherein X, R², R³, and R⁴ have the same meanings as in the general formula (1), and R⁵ represents hydrogen atom,

thiocyanato group, dithio group which combines two pyrazole rings, or mercapto group. Z represents a halogen atom).

9. A process for producing a pyrazole derivative of the general formula (1), which comprises treating a pyrazole derivative of the general formula (2) (wherein R^5 is hydrogen atom and Y is Y-3) with $R^1S(O)_nX^1$ (R^1 has the same meaning as in the general formula (1), n is 0 or 1, and X^1 is chlorine atom or bromine atom).

10. A process for producing a pyrazole derivative of the general formula (1) (wherein n is 1 or 2), which comprises oxidizing a sulfur atom of a pyrazole derivative of the general formula (1) (wherein n is 0).

11. A process for producing a pyrazole derivative of the general formula (1) (wherein n is 0), which comprises treating a pyrazole derivative of the general formula (2) (wherein R^5 is thiocyanato group and Y is Y-3) with R^1-X^2 (wherein R^1 has the same meaning as in the general formula (1) and X^2 represents a halogen atom or trimethylsilyl group).

12. A process for producing a pyrazole derivative of the general formula (1) (wherein n is 0), which comprises treating a pyrazole derivative of the general

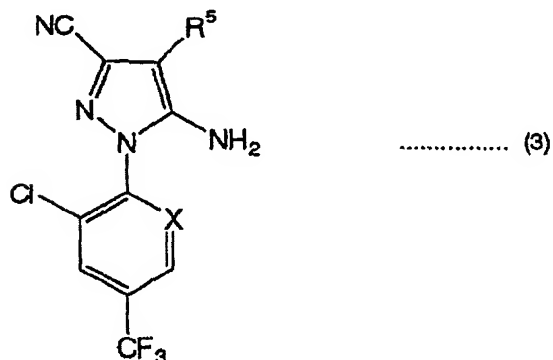
formula (2) (wherein R^5 is mercapto group and Y is Y-3)
with R^1-X^3 (wherein R^1 has the same meaning as in the
general formula (1) and X^3 represents a halogen atom).

5 13. A process for producing a pyrazole derivative
of the general formula (1) (wherein n is 0 and R^3 is
hydrogen atom), which comprises treating a pyrazole
derivative of the general formula (2) (wherein R^5 is dithio
group which combines two pyrazole rings and Y is Y-3) with
10 R^1-X^4 (wherein R^1 has the same meaning as in the general
formula (1) and X^4 represents a halogen atom or SO_2M (M
represents an alkali metal)).

15 14. A process for producing a pyrazole derivative
of the general formula (1) (wherein R^1 has one or more
fluorine atoms), which comprises treating a pyrazole
derivative of the general formula (1) (wherein R^1 is an
alkyl group containing one or more chlorine atom or bromine
atom) with a fluorinating agent selected from the group
20 consisting of hydrogen fluoride, a mixture of hydrogen
fluoride and an amine, and a metal fluoride.

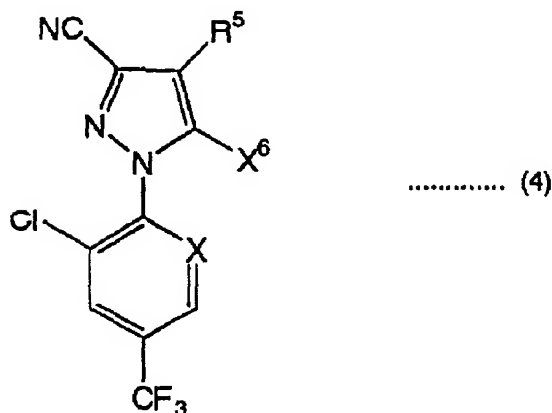
25 15. A process for producing the pyrazole
derivative according to any one of claims 9 to 14, wherein
 R^1 is a haloalkyl group having 1 to 2 carbon atoms.

16. A process for producing a pyrazole derivative of the general formula (2) (wherein Y is Y-3 and R² is hydrogen atom), which comprises treating a pyrazole derivative of the following general formula (3) (wherein X has the same meaning as in the general formula (1)) with a nitrogen-containing six-membered heterocyclic compound represented by A-CH(-R³)-X⁵ (wherein A has the same meaning as in the general formula (1) and X⁵ represents a halogen atom, a lower alkylsulfonyloxy group, or an arylsulfonyloxy group).



17. A process for producing a pyrazole derivative of the general formula (2) (wherein Y is Y-3 and R² is hydrogen atom), which comprises treating a pyrazole derivative of the following general formula (4) (wherein X has the same meaning as in the formula (1), R⁵ has the same meaning as in the formula (2), and X⁶ represents a halogen atom, a lower alkylsulfonyloxy group, or an arylsulfonyloxy

group) with a nitrogen-containing six-membered heterocyclic compound represented by $A-CH(-R^3)-NH_2$ (wherein A and R^3 have the same meanings as in the general formula (1)).



18. A process for producing a pyrazole derivative of the general formula (2) (wherein Y is Y-1 and R^2 is hydrogen atom), which comprises treating a pyrazole derivative of the general formula (3) with a nitrogen-containing six-membered heterocyclic compound represented by $A-C(=O)X^7$ (wherein A has the same meaning as in the general formula (1) and X^7 represents hydroxyl group, an alkoxy group having 1 to 6 carbon atoms, or a halogen atom).

19. A process for producing a haloimide compound of the general formula (2) (wherein Y is Y-2 and Z is chlorine atom or bromine atom), which comprises treating an amide compound of the general formula (2) (wherein Y is

Y-1 and R² is hydrogen atom) with phosphorus pentachloride, phosphorus pentabromide, phosphorus oxychloride, phosphorus oxybromide, thionyl chloride, or thionyl bromide.

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20. A process for producing a pyrazole derivative of the general formula (2) (wherein Y is Y-3 and R³ is hydrogen atom), which comprises reducing an amide compound or a haloimide compound represented by the general formula (2) (wherein Y is Y-1 or Y-2).

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